UTILITY PATENT APPLICATION TRANSMITTAL
(Large Entity)
(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
1056

Total Pages in this Submission

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Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for an invention entitled:

METHOD OF TRANSMITTING DIGITALLY CODED TRAFFIC INFORMATION AND RADIO RECEIVER FOR SAME

and invented by:

Michael RUF, Ulrich KERSKEN, Claus DORENBECK, Heinrich SCHMIDT, Karin HEMPEL

If a CONTINUATION APPLICATION, *check appropriate box and supply the requisite information:*

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Enclosed are:

Application Elements

1. ☒ Filing fee as calculated and transmitted as described below

2. ☒ Specification having _____21_____ pages and including the following:

   a. ☒ Descriptive Title of the Invention

   b. ❑ Cross References to Related Applications *(if applicable)*

   c. ❑ Statement Regarding Federally-sponsored Research/Development *(if applicable)*

   d. ❑ Reference to Microfiche Appendix *(if applicable)*

   e. ☒ Background of the Invention

   f. ☒ Brief Summary of the Invention

   g. ☒ Brief Description of the Drawings *(if drawings filed)*

   h. ☒ Detailed Description

   i. ☒ Claim(s) as Classified Below

   j. ☒ Abstract of the Disclosure

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Application Elements (Continued)

3. ☒ Drawing(s) *(when necessary as prescribed by 35 USC 113)*

    a. ☒   Formal   Number of Sheets   2

    b. ☐   Informal   Number of Sheets

4. ☒ Oath or Declaration

    a. ☐   Newly executed *(original or copy)*   ☒   Unexecuted

    b. ☐   Copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional application only)*

    c. ☒   With Power of Attorney   ☐   Without Power of Attorney

    d. ☐   *DELETION OF INVENTOR(S)*
        Signed statement attached deleting inventor(s) named in the prior application,
        see 37 C.F.R. 1.63(d)(2) and 1.33(b).

5. ☐ Incorporation By Reference *(usable if Box 4b is checked)*
    The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

6. ☐ Computer Program in Microfiche *(Appendix)*

7. ☐ Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all must be included)*

    a. ☐   Paper Copy

    b. ☐   Computer Readable Copy *(identical to computer copy)*

    c. ☐   Statement Verifying Identical Paper and Computer Readable Copy

Accompanying Application Parts

8. ☐ Assignment Papers *(cover sheet & document(s))*

9. ☐ 37 CFR 3.73(B) Statement *(when there is an assignee)*

10. ☐ English Translation Document *(if applicable)*

11. ☐ Information Disclosure Statement/PTO-1449   ☐   Copies of IDS Citations

12. ☐ Preliminary Amendment

13. ☒ Acknowledgment postcard

14. ☒ Certificate of Mailing

    ☐   First Class   ☒   Express Mail *(Specify Label No.):* EK 069304015 US

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Accompanying Application Parts (Continued)

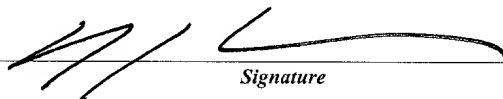15. ☒ Certified Copy of Priority Document(s) *(if foreign priority is claimed)*

16. ☐ Additional Enclosures *(please identify below):*

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Multiple Dependent Claims (check if applicable) ☐						$0.00
					BASIC FEE	$690.00
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      pursuant to 37 C.F.R. 1.311(b).

_____
                                    Signature

Dated: **FEBRUARY 11, 2000**

cc:

P01ULRG/REV04

BE IT KNOWN that **We**, Michael RUF, Ulrich KERSKEN, Claus

DORENBECK, Heinrich SCHMIDT and Karin HEMPEL, citizens of Germany,

whose post office addresses and residencies are, respectively, Winkelbrink 9,

31141 Hildesheim, Germany; Schwarze Heide 13, 31199 Diekholzen, Germany;

5   Blumenthal 14, 21709 Himmelpforten, Germany; Lehmkamp 22, 31199

Diekholzen, Germany and Gottfried Boehm Ring 59, 81369 München, Germany;

have invented certain new and useful improvements in a

METHOD OF TRANSMITTING DIGITALLY CODED TRAFFIC

10   ## INFORMATION AND RADIO RECEIVER FOR SAME

Of which the following is a complete specification thereof:

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BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a method for transmission of digitally coded

traffic information and, more particularly, to a method for transmission of digitally

coded traffic information according to a standard format, especially according to the

TMC method. It also relates to a radio receiver for the traffic information, especially

traffic information produced according to the TMC method.

2. Prior Art

DE 35 36 820 C2 already describes the structure of a receiver, in which the

standardized traffic information is received. Vehicle traffic information, including

predetermined highway and street numbers and route information, chiefly locations

and standard text associated with the locations, can be very rapidly transmitted in a

coded manner. The highway numbers, the route information and other place

names and associated standard texts are stored in a memory and are

communicated to a suitable radio receiver. If a traffic obstacle occurs, that

information is transmitted digitally in a brief or compact coded form and then

translated into a complete message in the radio receiver. Because of that method a

complete vehicle traffic message can be transmitted with comparatively few bytes,

so that a large amount of vehicle traffic information may be transmitted in a

comparatively short time in a data transmission system with small power

consumption.

It is troublesome when highway or street designations or place names and associated information have changed due to construction. Then location data, which are no longer readable in form, such as of signs, are reproduced by the radio receiver equipped with a memory, so that the vehicle operator is irritated.

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Summary of the Invention

It is an object of the present invention to provide an improved method of transmitting digitally coded vehicle traffic information and a receiver for this

10 information.

According to the invention at least one location description is added to the basic standard coded traffic information. Because of that feature it is possible to change place names or to transmit place names associated with the described location, which were not originally stored in the memory of the radio receiver.

15 Digital radio information is increasingly being broadcast and also transmission methods, which can transmit large amounts of data, are increasingly available for that digital radio information. Because of these developments it is also possible to store only the predetermined standard textual information in the vehicle memory and to generally depend on the transmitted digitally coded traffic information for the

20 location or place information, or to completely eliminate the memory from the radio receiver. This increases the flexibility of the digitally transmitted traffic information to a great extent. The header that is received in the radio receiver then also serves

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not only to communicate digitally coded traffic information, but also digitally coded traffic data, location information and other information.

Thus in the method according to the invention digitally coded traffic information including traffic messages having a standard format, such as those coded according to TMC, are transmitted. According to the method each of the traffic messages includes a leading header and at least one additional information portion following the leading header. Location information in the at least one additional information portion is an essential feature of the invention.

Further improved features are set forth in the appended dependent method claims.

The header is advantageously used to simultaneously encode vehicle traffic information. Because of that feature it is possible to make vehicle traffic information available when certain services are received or fees paid. It is preferable to divide the additional information into classes. Each class has a class indicator and at least one data packet of information. By dividing the information into classes it is not only possible to transmit location information but also additional information in the vehicle traffic information, for example to provide the memory in the radio receiver with new location data, or to transmit textual information in a foreign language regarding location designations so that vehicle operators traveling abroad, or in a foreign country, can receive the information in their native tongue. It is also beneficial to transmit the number of following data packets after the classification designation. Because of that feature of the method it is guaranteed that the radio receiver is in a position to completely receive all the information in one class. It is

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also beneficial to define each data packet by packet type, which means according to the content of the information and the data. Because of this latter feature of the method it is possible to transmit different types of information in one data packet. It is also advantageous to establish a respective minimum time for handling packets for each information class. As a result, all necessarily required actual information for each classification is guaranteed.

The subject matter of the invention also includes a suitably designed radio receiver for receiving the digitally coded vehicle traffic information produced by the method according to the invention. This radio receiver has a separating device for digital data and speech information and an evaluating circuit for evaluation of digitally transmitted traffic information. With this radio receiver it is possible, on the one hand, to verify the receiver reception and, on the other hand, to determine what information is received in the data packets besides the digitally coded vehicle traffic information. It is also advantageous when the radio receiver has a memory only for standard text information. Because of this latter feature the standard text need not be transmitted in each case.

Brief Description of the Drawing

The objects, features and advantages of the invention will now be illustrated in more detail with the aid of the following description of the preferred embodiments, with reference to the accompanying figures in which:

Figure 1 is a block diagram of a radio receiver according to the invention;

Figure 2 is a diagram of one embodiment of a data word according to the

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invention;

Figure 3 is a diagram of a class according to the invention; and

Figure 4 is a diagram showing the structure of a data packet.

Description of the Preferred Embodiments

Figure 1 shows a radio receiver, for example a radio receiver with an antenna 1, in which a receiving stage 2 is connected. The decoded received signal is available at the output of the receiving stage 2. Spoken traffic information as well as spoken words and music are broadcast in known FM radio broadcasts. Digitally coded traffic information is also broadcast by means of a radio data system, RDS. The coding is based on a standard format, which was specially developed for the limited data capacity of RDS. The received information is then separated at the output of the receiving stage 2. The spoken words are input into an amplifier stage 3 and made audible to a listener by means of a loud speaker 4. The digitally transmitted data are input to a decoder 5, at whose output a serial signal with so-called TMC data is available. This serial signal is then further processed in the microprocessor 6 and an acoustic or optical signal containing the information in the serial signal is produced for the driver of the vehicle.

In the current transmissions of traffic information on a standardized basis lists and tables must be carried along into the end device for decoding the received message, as is described in the above-mentioned patent, because of the reduced transmission bandwidths, the channel properties and other performance parameters, for example, the speech independence. TMC messages currently

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operate not only to inform the driver, but also to provide dynamic navigation, which means consideration of the current traffic situation during computation of the travel route in the navigation system. The current travel situation was transmitted by TMC, so that, for example, the navigation system provides suggestions, such as

5 how to avoid a traffic jam.

The problem with TMC lies in the lists and tables input into the end device, in which especially the location code table is designated, which has the list of locations for the relevant street network for the vehicle traffic. An events list is also transmitted, in which the possible events are set forth, for example the length of the

10 traffic blockages and the reason, why a traffic jam arises. The set up of the location code table is a problem because of the required memory space. Furthermore not all traffic announcements can be coded, especially when the location code table is no longer current because of blockage of streets or addition of new streets. The events list allows only the use of pre-defined events. New events cannot be

15 transmitted by TMC in its known form. On the other hand, TMC itself has an increasing popularity since a greater information content can be provided by the current standard format with very little information.

TMC no longer only finds application to an increasing extent in FM radio broadcasting, but is similarly used in connection with GSM radio telephone

20 transmissions, which make use of the TMC position with short transmission times. Also in the newer modern radio transmission system, such as digital audio broadcasting (DAB) TMC is used as the language of choice. However the new transmission methods, because of developing technology, are in a position to

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considerably increase the data rates than is the case with RDS-TMC.

Essentially however a separation of speech information and TMC information must occur in all radio reception systems after reception and demodulation of the information, which must be processed in a suitable way in a processor. In Fig. 2 now a process for transmission of digitally coded traffic information is shown, which is backwards compatible with the known TMC method, which means that it offers additional information possibilities using the known TMC method. A standard broadcast TMC message 13 is augmented or expanded. The augmented or expanded standard TMC message 10 includes a header 12 and the individual TMC message 11. The message 11 itself comprises a standard TMC message 13 as well as added information packets 14, 15 and 16. If a header 12 is placed in front of the TMC message, at least one additional information portion 14 must be present. This additional information portion 14 must always be location information. The additional information portion 15 and 16 and further additional information are optional and are for transmission of different types of data.

The header 12 is necessary in order to be able to detect that expanded or augmented TMC information follows it. The header 12 can contain information regarding how many additional information portions 14, 15, 16 follow the basic TMC message and serve to perform an encoding of the TMC message as needed. The presence of encoding must be signaled and simultaneously the type of coating must be specified. Thus a coding indicator must be processed in the header. Thus it is possible to encode the TMC data differently and to transmit different TMC information according to the service, for example by GSM or DAB. For example, it

is thus possible to associate a first coding method with one service provider A and another coding method with a second service provider B. Thus it is possible to transmit different traffic information by means of GSM, either by the short message channel or by common GSM signal according to the service provider. The header is thus in a position to distinguish still other characteristics, such as the encoding and the notice of how much additional information is to be expected, as well as the expanded TMC message.

While the structure of the TMC message 13 is standard, so that it is not described in detail here, the additional information can be structured differently. It is important that at least one additional information portion 14 contains a location description, since an expanded or augmented TMC message would otherwise make no sense.

An additional information portion is illustrated in detail in Fig. 3. The additional information, which can have different content, is divided into so-called classes 20. Each class 20 thus includes a class indicator 21, a class length 22, which states the number of following additional information packets, and the following additional information packets 23 and 24. It is important here that certain classes with certain class indicators have a minimum number of required packets, so that optimum evaluation of the TMC data is possible. However also an arbitrary number of additional optional packets may be added. The definition of the class 20 is usually also useable for the TMC message 13 itself. The code for the TMC message itself is then used as the class indicator at position 21, while the class length designates the number of the TMC messages. Respective TMC groups

follow as data packets 23 and 24. One TMC message to be transmitted is thus in one data packet, while several TMC messages are in respective data packets. The standard traffic message includes traffic information not only from one group but also from up to five groups. In this case as many as five data packets 23, 24 must

5   be employed for the traffic message. The structure of a data packet is illustrated in Fig. 4, in which the data packet is indicated as data packet 25, and comprises a type indicator 26 and the following data 27. The type indicator 26 indicates whether or not the following data belongs to a previous data packet, or whether the data 27 are automatically interpretable in themselves. Now several traffic messages are

10   transmitted together in a TMC message by means of the TMC message component 13 based on the structure of the classes.

As already mentioned one of the additional information portions 14 must contain a class for location descriptions. Information about the coded location statements in the TMC message is located here. Dependent on the type of

15   situation described in the TMC message one or more different data packets are necessary for this type of location description. The different combinations of number, type and following sequence for the data packets leads to a plurality of different classes. These different classes include required information. The required information includes location information, for example, data packets for

20   street names, for names or abbreviations of streets, their numbers, coordinates, audio building blocks and the like. It is thus possible to add information that is continually kept up to date with TMC data transmitted in coded form. For the receiver this provides the advantage that the above-mentioned memory must be

10

present in a GSM hand radio unit, since the data for coding the TMC packet are transmitted with the location information included in the classes. Because of this feature display of the information on a display device is possible. If audio information is also transmitted, speech reproduction is also possible. If coordinates

5 are also added, these coordinates are immediately transferred to the navigation unit for use, so that a new route calculation can be simplified. Now application-specific data can be included in additional classes, for example additional information for special navigation system suggestions regarding noteworthy or especially dangerous situations, such as steep slopes, smooth ice or curves.

10 The microprocessor 6 shown in Fig. 1 also contains a memory 7, in which normal events are stored in a special embodiment of the invention. Since the standard events change more frequently than location data, a mixed operation can occur according to the invention, in which a part of the required TMC information, especially the events, such as "3 km traffic jam" and the like, is stored in a memory

15 of the radio receiver, while other information entities, or their changes more likely, are transmitted. However this is not required. Understandably it is also possible to provide no memory at all and to transmit the events as additional information, or to previously store a complete list of location codes and events and only to transmit that data as expanded informational topics, which are not contained in the location

20 code list.

Different data packet types, which can be transmitted in one class of additional information, are for example tabulated in the following Table I.

TABLE I. DATA PACKET TYPES TRANSMITTED IN ONE CLASS OF ADDITIONAL INFORMATION

TYPE NUMBER	PACKET TYPE	TYPE LENGTH	DESCRIPTION
0	Number	5 byte	TMC group
1	Number	8 byte	Location: ECC + CC + LocDB# +Location code (by ALERT C)
2	Number	1 byte	Street class (Primary, secondary, etc., coded as 1, 2, etc.)
3	Street Information	n byte	Street type (e.g Ave, St, etc.)
4	Street Information	n byte	Street number (e.g. 4, 1204, etc.)
5	Text	n byte	Street suffix (e.g. n, old, etc.)
6	Name	n byte	Street name (e.g Kölner Ring)
7	Name	n byte	1. segment name
8	Name	n byte	2. segment name
9	Text	n byte	Location type (according to ENV12313-3, e.g. A1.0.P1.13, etc.)
10	Text	n byte	Location type – indicator (e.g. exit road)

5

TABLE I (CON). DATA PACKET TYPES

TYPE NUMBER	PACKET TYPE	TYPE LENGTH	DESCRIPTION
11	Name	n byte	Location name (e.g. Hildesheim-Drispenstedt)
12	Number	n byte	Exit number (e.g. 17b)
13	Text	n byte	Region designation (e.g. Governmental district)
14	Name	n byte	Region name (e.g. Hannover)
15	Number	n byte	By-pass road number
16	Text	n byte	By-pass road suffix
17	Coordinates	18 byte	Point coordinates (WGS84)
18	Coordinates	36 byte	Coordinates-pair (WGS84)
19	Number	8 byte	Cross-reference in other Location codes
20	Street Indicator	n byte	European Street Number (e.g. 4 for the E4)
21	Audio	n byte	Audio data
22	Number	1 byte	Version number (location of the Data bank)
23	Text	n byte	Free text
24		n byte	Destination location list (for keeping the lists in the end device up-to-date)

TABLE II. DIFFERENT CLASS STRUCTURES

Number	REQUIRED PACKETS	OPTIONAL PACKETS	DESCRIPTION
1	1,9,10,17	12,13	Regional Announcement
2	1,2,4,7,8,17	3,5,6,12,13,14,19	Street or segment Announcement
3	1,2,4,9,10,13,16	3,5,6,7,8,12,18,19	Location in-side of city or town
4	1,2,4,7,8,9,10, 11,16	3,5,6,12,13,14,15,18	Location out-side of city or town
5	1,2,4,9,10,13,16	3,5,6,12,18,19	Two locations in A city
..			
..			
..			
9	2,4,7,8,1,9,10,11, 16,1,9,10,11,16	3,5,6,12,14,15,18,19	2 locations, both outside a city
..			
17	245	-	Location list update
..			

Here in Table II class 1 is described with certain packet type numbers

5   according to table I and also two optional packets can be transmitted, but of course

they are not required. This is also similar for the remaining classes.

In the following paragraphs, the manner of coding of an expanded TMC message is described as an example of the method according to the invention. The following message is a typical traffic radio message for trouble on an autobahn. "A4 Olpe heading to Köln, between Bergisch-Gladbach, Moitzfeld and Bergisch-

5   Gladbach, Bensber, 2 km stacked up traffic".

If this traffic message is coded according to standard hexadecimal, the following representation results: 08 086E 2B74. This was the information, which was transmitted as a traffic announcement, as TMC message 13 in a data packet 23. It is best to use class 9 according to Table II as the class for the location

10   information because of the situation described in the traffic message. This has the structure or format as shown in the following Table III.

TABLE III. EXEMPLARY INFORMATION PORTION CLASS

Class d. Location Information	Required Packets (packet types)	Optional Packets (packet types)	
9	2,4,7,8,1,9,10,11, 16,1,9,10,11,16	3,5,6,12,14,15, 18,19	2 locations, both outside a city

List of required data packets:

15   Element 2: Street class: 1

Element 4: Street number : 4

Element 7: Olpe

Element 8: Köln

1. Element 1: ECC=EO, CC=D, LocDB#=1;Location code=2B74h

20   1. Element 9: P1.3

1. Element 10: Bergisch-Gladbach Moitzfeld

1.Element 11: 20

1. Element 16: 007642312,051238721

2. Element 1: ECC=EO, CC=D, LocDB#=1;Location code=2B73h

2. Element 9: P1.3

2. Element 10: Bergisch-Gladbach Bensberg

2.Element 11: 19

2. Element 16: 007542342,051029628

List of Optional Data Packets:

Element 14: 50 (Since the U50 leads from Moitzfeld to Bensber)

Element 19: 40 (Since the A4 is part of the E40).

Because of the information now present it is not only possible to transfer the required information to the navigation device, but also to retrieve the above-mentioned traffic message. Without the use of the method according to the invention some additional information must be stored in the radio receiver.

Location data for the start of a traffic jam, the end of the traffic jam, intervening aid points or actual time lost can be transmitted as additional information in the further fields 15 and 16, which result because of the traffic density on the streets. Furthermore the event classes are transmittable as additional information or similar description. It is then possible to sort the traffic messages according to different criteria with the aid of the event classes.

The disclosure in German Patent Application 199 05 893.8 of February 11, 1999 is incorporated here by reference. This German Patent Application describes the invention described hereinabove and claimed in the claims appended hereinbelow and provides the basis for a claim of priority for the instant invention under 35 U.S.C. 119.

While the invention has been illustrated and described as embodied in a method of transmitting digitally coded traffic information and radio receiver for same, it is not intended to be limited to the details shown, since various modifications and changes may be made without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention.

What is claimed is new and is set forth in the following appended claims.

We claim:

1   1. A method of transmitting digitally coded traffic information, wherein said digitally

2   coded traffic information includes traffic messages having a standard format, said

3   method comprising the steps of:

4   a) providing a leading header (12) in each of said traffic messages;

5   b) providing at least one additional information portion (14,15,16) in each of

6   said traffic messages following said leading header; and

7   c) providing location information in at least one of said at least one additional

8   information portion (14,15,16).

1   2. The method as defined in claim 1, wherein the header (12) includes means for

2   encoding said traffic information.

1   3. The method as defined in claim 1, wherein said at least one additional

2   information portion is divided into classes (20) and each of said classes (20)

3   comprises a class indicator (21) and at least one data packet (23,24).

1   4. The method as defined in claim 3, wherein each of said classes (20) includes a

2   class length (22) following said class indicator (21) and leading said at least one

3   data packet (23,24) and said class length (22) designates results of a count of said

4   data packets following said class length (22).

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1   5. The method as defined in claim 4, wherein each of said at least one data packet

2   (23,24) comprises a type indicator (26) and information entities (27).

1   6. The method as defined in claim 3, wherein a total number of required packets is

2   fixed in each of said classes.

1   7. The method as defined in claim 1, wherein said standard format is coded

2   according to a TMC method.

1   8. A radio receiver for digitally coded traffic information includes traffic messages,

2   each of said traffic messages having a standard format, said standard format

3   comprising a leading header (12) and at least one additional information portion

4   (14,15,16) following said leading header, said radio receiver comprising a receiving

5   stage (2) including means for separating digital data from speech information,

6   analyzing means for decoding said digital data input from said receiving stage to

7   obtain decoded traffic messages and a processor (6) connected to said analyzing

8   means (5) to receive said decoded traffic messages and including means for

9   processing said decoded traffic messages.

1   9. The radio receiver as defined in claim 8, wherein said traffic messages are TMC

2   traffic messages.

1   10. The radio receiver as defined in claim 9, wherein said processor (6) includes a

2   memory (7) for only standard text information and means for detecting location

3   information in said digital data..

ABSTRACT OF THE DISCLOSURE

A method of transmitting digitally coded traffic information is described, in which the traffic information is transmitted in standard format. The traffic information itself has a leading header and at least one following information portion, which must include a location description. Because of the features of the invention traffic information can be transmitted, which cannot possibly be put in standard format or is not provided in a standard format.

Fig.1

Fig. 2

```
                                    ┌─────────────────────┐         10
                                    │ Expanded TMC message│────╱
                                    └─────────────────────┘
                                                              11
                          ┌──────────────────────┐       ╱
                          │ Individual TMC Message │────╱
                          └──────────────────────┘
   ┌──────────┐┌──────────────────────┐┌──────────────┐┌──────────────┐┌──────────────┐
   │  Header  ││ Standard TMC Message  ││ Location data││ Optional data ││ Optional data │
   └──────────┘└──────────────────────┘└──────────────┘└──────────────┘└──────────────┘
        12              13                    14              15              16
```

Fig. 3

```
   ┌──────────────┐                  20
   │    Class     │────────────╱
   └──────────────┘

   ┌────────────────┬──────────────┬──────────────┐   ┌──────────────┐
   │ Class Indicator│ Class Length │ Data Packet  │   │ Data Packet  │
   └────────────────┴──────────────┴──────────────┘   └──────────────┘
          21               22             23                  24
```

Fig. 4

```
   ┌──────────────┐
   │ Data Packet  │───────────         25
   └──────────────┘

   ┌────────────────┬──────────────────────┐
   │ Type Indicator │      Information       │
   └────────────────┴──────────────────────┘
          26                    27
```
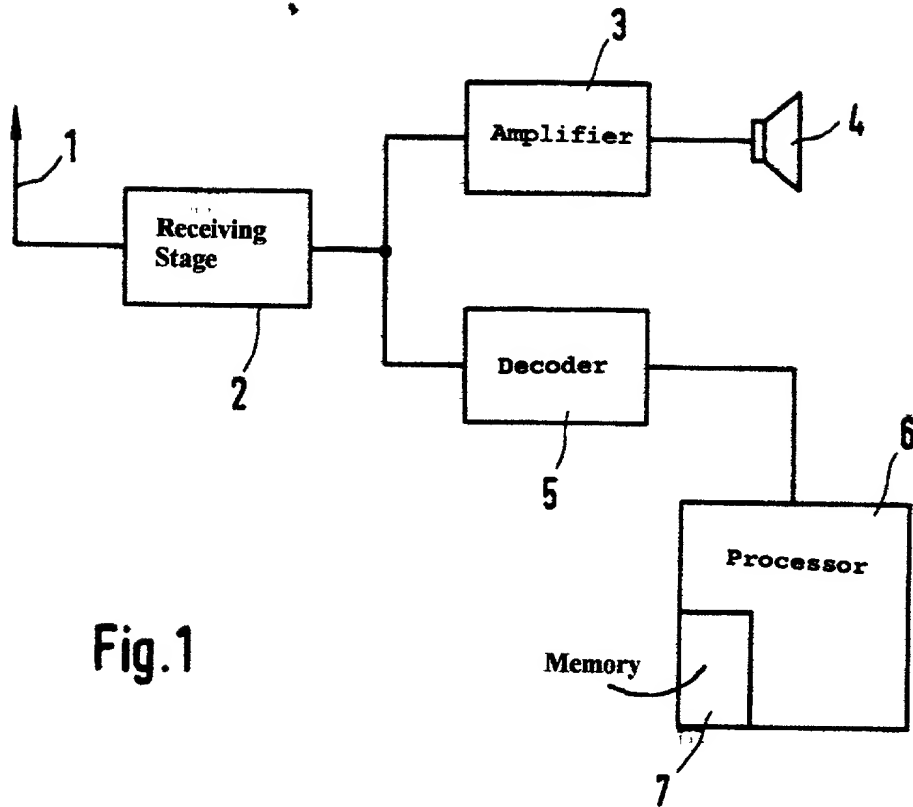
PTO/SB/103 (8-96)
Approved for use through 9/30/98. OMB 0651-0032
Patent and Trademark Office· U.S. DEPARTMENT OF COMMERCE
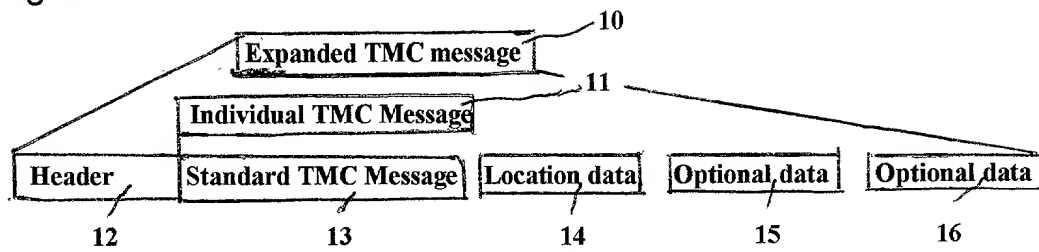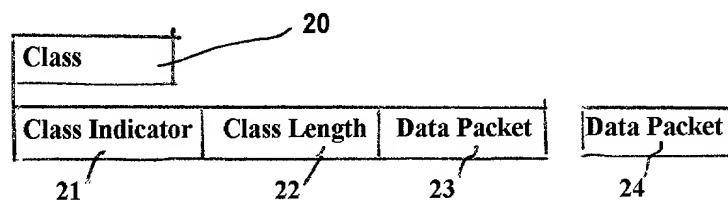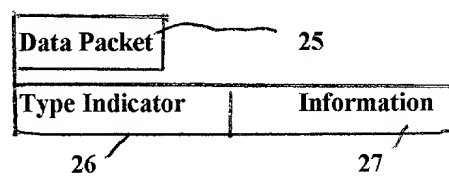Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

Declaration and Power of Attorney for Patent Application
Erklärung für Patentanmeldungen mit Vollmacht

G e r m a n L a n g u a g e D e c l a r a t i o n

Als nachstehend benannter Erfinder erkläre ich hiermit an Eides Statt:

Michael RUF
Ulrich KERSKEN
Claus DORENBECK
Heinrich SCHMIDT
Karin HEMPEL

dass mein Wohnsitz, meine Postanschrift und meine Staatsangehörigkeit den im nachstehenden nach meinem Namen aufgeführten Angaben entsprechen, dass ich nach bestem Wissen der ursprüngliche, erste und alleinige Erfinder (falls nachstehend nur ein Name angegeben ist) oder ein ursprünglicher, erster und Miterfinder (falls nachstehend mehrere Namen aufgeführt sind) des Gegenstandes bin, für den dieser Antrag gestellt wird und für den ein Patent für die Erfindung mit folgendem Titel beantragt wird:

VERFAHREN ZUR ÜBERARBEITUNG VON DIGITAL CODIERTEN VERKEHRSNACHRICHTEN UND FUNKEMPFÄNGER DAZU

deren Beschreibung hier beigefügt ist, es sei denn (in diesem Falle Zutreffendes bitte ankreuzen), diese Erfindung

☐ wurde angemeldet am_____
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   Internationalen Anmeldenummer im Rahmen des
   Vertrags über die Zusammenarbeit auf dem Gebiet des
   Patentwesens (PCT) _____und am
   _____abgeändert (falls
   zutreffend).

Ich bestätige hiermit, dass ich den Inhalt der oben angegebenen Patentanmeldung, einschliesslich der Ansprüche, die eventuell durch einen oben erwähnten Zusatzantrag abgeändert wurde, durchgesehen und verstanden habe.

Ich erkenne meine Pflicht zur Offenbarung jeglicher Informationen an, die zur Prüfung der Patentfähigkeit in Einklang mit Titel 37, § 1.56 von Belang sind.

As a below named inventor, I hereby declare that:

Michael RUF
Ulrich KERSKEN
Claus DORENBECK
Heinrich SCHMIDT
Karin HEMPEL

My residence, post office address and citizenship are as stated next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

METHOD FO TRANSMITTING DIGITALLY CODED TRAFFIC INFORMATION AND RADIO RECEIVER FOR SAME

the specification of which is attached hereto unless the following box is checked:

☐ was filed on_____
   as United States Application Number or PCT
   International Application Number _____
   and was amended on _____(if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Code of Federal Regulations, Regulations, § 1.56.

GermanLanguageDeclaration

Ich beanspruche hiermit ausländische Prioritätsvorteile gemäss Title 35, US-Code, § 119 (a)-(d), bzw. § 365(b) aller unten aufgeführten Auslandsanmeldungen für Patente oder Erfinderurkunden, oder § 365(a)aller PCT internationalen Anmeldungen, welche wenigstens ein Land ausser den Vereinigten Staaten von Amerika benennen, und habe nachstehend durch ankreuzen sämtliche Auslands-anmeldungen für Patente bzw. Erfinderurkunden oder PCT internationale Anmeldungen angegeben, deren Anmeldetag dem der Anmeldung, für welche Priorität beansprucht wird, vorangeht.

I hereby claim foreign priority under Title 35, United States Code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Applications
(Frühere ausländische Anmeldungen)

Priority Not Claimed
Priorität nicht beansprucht

1 99 05 893.8 ___GERMANY_____

(Number)   (Country)
(Nummer)   (Land)

FEBRUARY 11,1999 ___   ☐

(Day/Month/Year Filed)
(Tag/Monat/Jahr der Anmeldung)

_____

(Number)   (Country)
(Nummer)   (Land)

_____   ☐

(Day/Month/Year Filed)
(Tag/Monat/Jahr der Anmeldung)

Ich beanspruche hiermit Prioritätsvorteile unter Title 35, US-Code, § 119(e) aller US-Hilfsanmeldungen wie unten aufgezählt.

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s)listed below.

_____

(Application No.)   (Filing Date)
(Akzenzeichen)   (Anmeldetag)

Ich beanspruche hiermit die mir unter Title 35, US-Code, § 120 zustehenden Vorteile aller unten aufgeführten US-Patentanmeldungen bzw. § 365(c) aller PCT internationalen Anmeldungen, welche die Vereinigten Staaten von Amerika benennen, und erkenne, insofern der Gegenstand eines jeden früheren Anspruchs dieser Patentanmeldung nicht in einer US-Patentanmeldung, bzw. PCT internationalen Anmeldung in in einer gemäss dem ersten Absatz von Title 35, US-Code, § 112 vorgeschriebenen Art und Weise offenbart wurde, meine Pflicht zur Offenbarung jeglicher Informationen an, die zur Prüfung der Patentfähigkeit in Einklang mit Title 37, Code of Federal Regulations, § 1.56 von Belang sind und die im Zeitraum zwischen dem Anmeldetag der früheren Patentanmeldung und dem nationalen oder im Rahmen des Vertrags über die Zusammenarbeit auf dem Gebiet des Patentwesen (PCT) gültigen internationalen Anmeldetags bekannt geworden sind.

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

_____

(Application No.)   (Filing Date)
(Akzenzeichen)   (Anmeldentag)

(Status) (patented, pending, abandoned)
(Status) (pateniert, schwebend, aufgegeben)

_____

(Application No.)   (Filing Date)
(Akzenzeichen)   (Anmeldentag)

(Status) (patented, pending, abandoned)
(Status) (pateniert, schwebend, aufgegeben)

Ich erkläre hiermit, dass alle in der vorliegenden Erklärung von mir gemachten Angaben nach bestem Wissen und Gewissen der Wahrheit entsprechen, und ferner dass ich diese eidesstattliche Erklärung in Kenntnis dessen ablege, dass wissentlich und vorsätzlich falsche Angaben oder dergleichen gemäss § 1001, Title 18 des US-Code strafbar sind und mit Geldstrafe und/oder Gefängnis bestraft werden können und dass derartige wissentlich und vorsätzlich falsche Angaben die Rechtswirksamkeit der vorliegenden Patentanmeldung oder eines aufgrund deren erteilten Patentes gefährden können..

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German Language Declaration

VERTRETUNGSVOLMACHT: Als benannter Erfinder beauftrage ich hiermit den (die) nachstehend aufgeführten Patentanwalt (älte) und/oder Vertreter mit der Verfolgung der vorliegenden Patentanmeldung sowie mit der Abwicklung aller damit verbundenen Angelegenheiten vor dem US-Patent- und Markenamt: *(Name(n) und Registrationsnummer(n) auflisten)*

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Unterschrift des Erfinders Datum	Fifth inventor's signature Date
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Vor- und Zumane des sextens Erfinders (falls zutreffend)	Full name of sixth joint inventor, if any
Unterschrift des Erfinders Datum	Sixth inventor's signature Date
Wohnsitz	Residence
Staatangehörtigkeit	Citizenship